Do Financial Constraints Moderate the Impact of Financing Decisions From Internal-financing Sources on Investment?

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ABSTRACT

Keywords:
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G32, G35, D25

To prevent investment growth in 2013 to 2015 from decreasing, the Industrial Ministry provided fiscal incentives to stimulate investment-growth. Nevertheless, the investment-growth of manufacturing firms still declined. This condition indicated that fiscal stimulus might be ineffective to prevent investment-growth from declining. The decline of investment might be influenced by the increase of firm financial constraints to access a source of long term debts. This study aimed to examine the influence of financial constraints in moderating the effect of financing decisions from internal financing sources on investment. The population of the study was all listed-manufacturing firms in Indonesia from 2013 to 2015. Samples were chosen based on the availability of firms' financial report covering the period of the study. The study concluded that financial constraints significantly weaken the effect of internal funding decision on investment. Unconstrained firms had a higher beta than constrained firms. Although unconstrained firms had an opportunity to choose their source of funding, they preferred to finance their investment from cash flows because the cost of debts might be much higher than the cost of equity. Hence, to help firms to finance their feasible investment opportunity, the government should not only provide tax incentives but also provide a low-interest loan.

ABSTRAK

Kata Kunci:
*Arus Kas; Kendala
Finansial;
Keputusan
Pembiayaan;
Investasi*

Untuk mencegah pertumbuhan investasi pada tahun 2013 sampai 2015 dari penurunan, Kementerian Industri memberikan insentif fiskal untuk merangsang pertumbuhan investasi. Meski begitu, pertumbuhan investasi perusahaan manufaktur masih menurun. Kondisi ini menunjukkan bahwa stimulus fiskal mungkin tidak efektif untuk mencegah pertumbuhan investasi menurun. Penurunan investasi tersebut mungkin dipengaruhi oleh kenaikan kendala keuangan perusahaan untuk mengakses sumber utang jangka panjang. Penelitian ini bertujuan untuk menguji pengaruh kendala keuangan dalam memoderasi pengaruh keputusan pembiayaan dari sumber pembiayaan internal terhadap investasi. Populasi penelitian ini adalah semua perusahaan manufaktur terdaftar di Indonesia dari tahun 2013 sampai 2015. Sampel dipilih berdasarkan ketersediaan laporan keuangan perusahaan yang mencakup periode penelitian. Studi tersebut menyimpulkan bahwa kendala keuangan secara signifikan melemahkan pengaruh keputusan pendanaan internal terhadap investasi. Perusahaan yang tidak dibatasi memiliki beta yang lebih tinggi daripada perusahaan yang dibatasi. Meskipun perusahaan yang tidak dibatasi memiliki kesempatan untuk memilih sumber pendanaan mereka, mereka lebih suka membiayai investasi mereka dari arus kas karena biaya hutang mungkin jauh lebih tinggi daripada biaya ekuitas. Oleh karena itu, untuk membantu perusahaan membiayai peluang investasi yang layak, pemerintah seharusnya tidak hanya memberikan insentif pajak tetapi juga memberikan pinjaman dengan bunga rendah.

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In 2013, Indonesia experienced a slowdown economic growth. This was because of the pressures of US economy, economic crises in Europe, and China Government policy to control its inflation (Media-Industri, 2013). The decline of economic growth affects the growth of manufacturing sectors in Indonesia. From 2012-2015, the growth of manufacturing industry experienced a decline sequentially at 6,03%, 5,56%, 5,02%, and 4,79% (Media-Industri, 2016). To prevent the industrial growth from declining, the Indonesian Industrial Ministry provided fiscal incentives to stimulate investment growth (Media-Industri, 2013). Table 1 is showing the selected financial condition of Indonesian listed manufacturing firms.

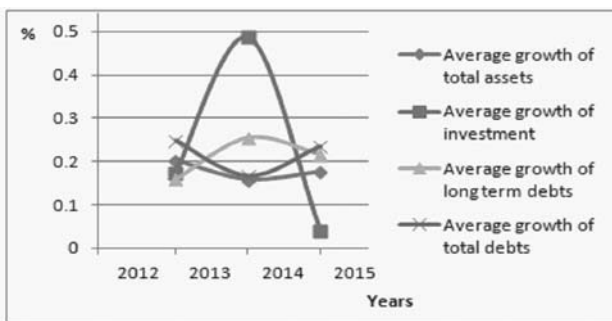The growths of selected financial indicators in Table 2 can be graphed as Figure 1.

Figure 1. Growths of selected Financial Indicators from Listed Manufacturing Firms in IDX from 2012-2015

Figure 1 shows that nominally from 2012-2015, the average of total assets, average investment, long term debts, and short term debts increased gradually but when the data were seen as a growth the average growth of investment, and long term debts in mid-2012 to mid-2013 increased but in mid-2014 to mid-2015 experienced a decrease. This condition is in contrast with average growth of total debts and total assets that decreased in mid-2012 to mid-2013 but increased slightly in mid-2014 to mid-2015. The increase in the growth of average total assets was followed with a significant decrease in investment growth on fixed assets. This condition indicates that fiscalstimulus from the government might be effective enough to increase the growth of total assets but not effective to increase investment in fixed assets. The decline of investment in fixed assets might be affected by the increase of firm financial constraints to access a source of external funding such as long term debts. This phenomenon is interesting to be investigated. This research, therefore, aims to examine the influence of financial constraints in moderating the effect of financing decisions from internal financing sources on investment.

Investment is important as maximizing the firm's value can only be realized through the firm's

Table 1. Selected Financial Indicators from Listed Manufacturing Firms in IDX (2012 – 2015)

	2012	2013	2014	2015
Average Total Assets	3,864,475,577,291	4,653,988,198,679	5,391,278,599,483	6,345,002,795,204
Average Investment	215,641,889,877	253,329,627,624	376,854,854,000	392,934,848,922
Average Long Term Debts	573,213,959,661	664,779,060,627	835,101,394,235	1,016,888,023,039
Average Short Term Debts	1,545,823,873,356	1,931,947,325,166	2,253,809,287,731	2,785,812,122,057

Source: Calculated Based on Data from Individual Manufacturing Firm Listed in IDX

Table 2. Growths of Selected Financial Indicators from Listed Manufacturing Firms in IDX (2012 – 2015)

	2012-2013	2013-2014	2014-2015
Average growth of total assets	20.4%	15.8%	17.7%
Average growth of investment	17.5%	48.8%	4.3%
Average growth of long term debts	16.0%	25.6%	21.8%
Average growth of total debts	25.0%	16.7%	23.6%

Source: Calculated Based on Data from Individual Manufacturing Firm Listed In IDX

investment activities. The amount of investment tightly correlates with financing decision because financing decision has implication on the cost of capital (Khan & Adom, 2015). Financing decisions involve from where the source of funds to finance the investments. Source of firm funding can be sourced from internal and external sources. Internal sources can be from the cash flows generated from firm operation. External sources can be got from debts. Furthermore, the firm capability to get loans depends on firm condition. Firms with financial constraints may get difficulties to acquire an external source of funding (Fazzari *et al.*, 1988).

Many studies such as Fazzari *et al.* (1988), Vogt (1994), Kaplan & Zingales (1997), Cleary (1999), and Moyen (2004) have been conducted to examine the relationship between financing decision and investment. To do so, they classified firms into 2 groups namely financially constrained firms and financially unconstrained firms. By measuring financial constraints as a dummy variable, they compared the effect of cash flows on investment between unconstrained firms and constrained firms. Level of cash flows represents financing decision that the financing is from the internal firm. There are 2 reversal results of empirical tests of the relationship between cash flows of unconstrained firms and constrained firms on investment that will be discussed further.

The first group of research provided the result that constrained firms have a higher beta than unconstrained firms (Vogt, 1994; Hermeindito, 2004). Based on asymmetric information theory, Fazzari *et al.* (1988) developed logical thinking to link between cash flows and investment. Asymmetric information occurs because information about firm condition owned by management and information held by the creditors is unequal (Ehrhardt & Brigham, 2014). The management comprehends firm's condition and prospects in detail and complete. Meanwhile, creditors have limited information about firm's condition and prospects. This asymmetry makes external fund-

ing becomes very costly because the creditors can have difficulties to assess the quality of firm's investment opportunities and risks. As a result, the creditors will require a cost of debt which is much higher than the cost of funds from its internal source (Lemmon & Zender, 2016). The higher the degree of information asymmetry, the greater the constraints of firms to access external funding. Accordingly, the firm will much rely on the availability of cash flows generated from firm operating activities. Fazzari *et al.* (1988) explained that firms that are facing financial constraints when their external source of funding becomes very expensive, so the firms can only use their internal source of funds to finance investment. Consequently, to provide enough cash for their investment, the firms will tend to apply a small dividend payout ratio. This means that the firms will increase the portion of retained earnings. Fazzari *et al.* (1988) identified firms with lower dividend classified as more constrained and firms with higher dividend classified as lesser constrained. Accordingly, in terms of the internal source of financing decision, firms with financial constraints will have higher beta than firms without financial constraints. It means that constrained firms depend more on the availability of cash flows (internal funds) than unconstrained firms.

There are some weaknesses of the study of Fazzari *et al.* (1988). Firstly, the literature indicates that shorting the beta (sensitivity of cash flows-investment) based on the classification of the level of financial constraints faced by firms greatly depends on how the researchers measure the concept of financial constraints. Hence, classifying firms into financially constrained and non-financially constrained based on a priori, where the classification is used to develop an interpretation on the sensitivity of cash flows-investment may be questionable for the validity. Secondly, the measurement of investment using Tobin's q is indicated to contain a measurement bias since Tobin's q does not consider investment in fixed assets that

need cash flow availability. Hence fixed assets are considered more reliable to the measurement of investment. Furthermore, cash flows are able to capture the phenomenon of financial constraints. When firms face financial constraint, they will much rely on the internal source of funds. Conversely, firms without financial constraint may less rely on the internal source of funds. They have a flexibility to their source of funds since they have access to external funds. Accordingly, the capability of firms to provide funds (whether from internal or external) will affect their investment. This reasoning provides a clear explanation of the relationship between financing decision from internal sources, financial constraints, and investment. Thirdly, there are potential problems about misspecification of Fazzari's model. Debt is considered to be an important variable since this variable has a significant correlation to the availability of cash flows but Fazzari *et al*. (1988) do not include debts in the model. Firms that have debts must pay monthly installment. The installment would reduce the availability of firm's cash. The second group such as Kaplan & Zingales (1997), Cleary (1999), Baker *et al*. (2003), and Hermeindito (2004), provided a contradicted result. Kaplan & Zingales (1997, 2000) used qualitative data available through interviewing firm managers and quantitative data available in financial statements of firms to classify firms into a group of developed financial constraints. Kaplan & Zingales (1997, 2000) found that unconstrained firms have a higher beta than constrained firms. It means that firms with easier access to external funds have relied more on internal funds (cash flows) than external funds. Kaplan & Zingales (1997) argued that managers of unconstrained firms may avoid risk in deciding their investment.

Based on the explanation above, it can be concluded that many studies have examined the relationship between cash flows, financial constraints, and investment but the results have been mixed. This research adopts Kaplan & Zingales'

and Fazzari's model but has dissimilarities with their measurements on classifying financially constrained and unconstrained firms. This research does not use the qualitative and quantitative approach as it is used by Kaplan & Zingales (1997) but uses a quantitative approach with a probit model. Probit model in this research will be discussed in the methods section. Furthermore, this research does not use Tobin's q as the proxy of investment as it is used by Fazzari *et al*. (1988) but uses fixed assets i.e. plant, property, and equipment (PPE). This research includes leverage to capture debt usage as a control variable to address the weakness of Fazzari's model. This research also includes firm size and sales as control variables to improve the goodness of fit of the research model. However, this research does not include cash holding due to the expected multicollinearity problem with cash flows. The contribution of this study, therefore, will be on the improvement model of Fazzari and the use of probit model to assign a firm whether it is classified as financially constrained or unconstrained that it is different from Kaplan & Zingales' Model.

HYPOTHESES DEVELOPMENT

Asymmetric information as stated above provided us reasoning how financing decision from internal sources affects investment. Asymmetric information makes external funds becomes very costly because the creditors have difficulties to evaluate and assess the quality of firm's investment opportunities and risks. As a result, the creditors will require a cost of debt which is much higher than the cost of funds from its internal source (Lemmon & Zender, 2016). Accordingly, the constrained firms will much rely on the availability of cash flows. Furthermore, pecking order theory (Myers & Majluf, 1984) sorts the source of funds from the cheapest to the most expensive. Sequentially, they have retained earnings, bank loans, issuing bonds, preferred stocks, and common stocks. Firms will use retained earnings (in-

ternal source of funding) first to finance their investment if the source of internal funds is not enough, firms can get the shortage from external sources i.e. bank loans, then issuing bonds, and so on. Deciding to finance investment from bank loans must consider that the investment rate of return must be higher than the cost of debts. Kaplan & Zingales (1997) said that financial constraints could occur if the firm faces a significant difference between the cost of capital from internal funds and the cost of capital from external funds. This definition provides a useful framework to distinguish firms into financially constrained and financially unconstrained. Firms with financial constraints are characterized by a difficulty to obtain funds from external sources (Kaplan & Zingales, 1997). Hence, the limitation will eventually impede firms' ability to invest, so constrained firms will highly depend on cash flows (internal funds). Conversely, unconstrained firms have a flexibility to their source of funding so they have access external funding. Eventually, they less depend on internal funds (cash flows). This can be concluded that constrained firms will have a higher beta (cash flow sensitivity on investment) than unconstrained firms. In other words, the financial constraint will strengthen the effect of cash flows on investment. Based on this explanation, some hypotheses can be proposed as follows:

H_1: internal source of financing (cash flows) of unconstrained firms have a positive and significant effect on investment. The beta is expected to be higher than constrained firms' beta.

H_2: financial constraints strengthen the effect of internal source of financing (cash flows) on investment.

METHODS

The population of this research is all listed manufacturing firms listed on the Indonesian Stock Exchange (IDX). They are 137 manufacturing firms

listed in 2013-2015 so there are 411 cases. Samples are selected based on purposive sampling based on the availability of financial reports covering from 2013-2015. From 137 firms, there are 108 firms provided financial reports covering that period. Hence, there are 324 cases covered in this research. All data in this study will be obtained from Indonesian Capital Market Directory.

Investments

Generally, investments in fixed assets will be received back within more than one year and will be accepted gradually (Hidayat, 2010). In this research, investment is measured as cash invested in PPE subtracted with cash received from selling PPE (Chang *et al.*, 2009). This research divides investment with the book value of total assets to address the issue of heterogeneity of firms' size. Firm A and Firm B. Firm A has investment IDR10,000,000 and total assets IDR1,000,000,000. Firm B has investment IDR1,000,000 and total assets IDR10,000,000. Nominally, Firm A has higher investment than Firm B but relatively from its total assets Firm A has investment 1% and Firm B has 10% investment.

$$\text{Investment}_t = \frac{(\text{Cash invested in PPE} - \text{Cash received from selling PPE})_{i,t}}{\text{Book value of total assets}_{i,t-1}} \dots (1)$$

Where,

PPE : plant, property and equipment.

t : the book value at the end of the year t

t-1 : the book value at the beginning of year t

Cash Flows as Internal Source of Funding

Firms that lack access to an external source of funding will greatly depend on the availability of internal funds (cash flows generated from firm operating activities) to finance the firm investment. Cash flows are measured with following formula (Kaplan & Zingales, 1997). This research uses total

assets as denominator to avoid heterogeneity of firms' size:

$$\text{Cash flows}_{i,t} = \frac{[\text{Net income} + \text{Depreciation and amortization}]_{i,t}}{\text{Book value of total assets}_{i,t-1}} \dots (2)$$

Financial Constraints

This study uses a logit model to get predictive classification based on the consideration that the logit model is more lenient from normal distribution assumption (Eisenbeis, 1977). This research uses dividend payment as the proxy of financial constraints as Deng *et al.* (2017) used. However, different from Deng's, this research threatens dividend payment as a dummy variable. Firms are classified as financially constrained if the firms do not pay a dividend. Such firms are assigned score one; otherwise zero. Financial constraint is a function of these following variables: (1) liquidity is measured with current ratio. Firms with high liquidity may be able to pay dividend; (2) profitability reflects the availability of financial resources to generate cash flows; (3) change in profit is measured as a dummy variable, which is a score of zero is assigned for negative change and one is for positive change; (4) retained earnings reflect the availability of internal funds; and (5) slack reflects the availability of funds that can be used to finance investment.

These following steps are the steps to measure financial constraints: (1) to make a logit model to predict financial constraints with following equations.

$$P_i = \frac{1}{1+e^{-z}} = \frac{e^z}{1+e^z} \dots \dots (3)$$

$$Z_{i,t} = a_0 + b_1 FP_{i,t} \dots \dots (4)$$

$$FP_i = Ln\left(\frac{P_i}{1-P_i}\right) = a_0 + b_1 CR + b_2 PROFIT + b_3 EC + b_4 SLACK +$$

$$b_5 RE + \varepsilon_{i,t} \dots \dots (5)$$

Where:
FP$_i$: Financial constraints of firm i
CR (Current Ratio) : current assets / sort term debt...................... (6)

PROFIT : Operating Income / Total Assets.. (7)
EC (EAT Change) : Positive Changes: 1, Negatives changes: 0
SLACK : [Cash + Short Term Investment + Inventories + Receivables – Current Debt]/Total Assets........ (8)
RE (retained earnings) : Retained earnings / Total Assets. (9)
P$_i$: Probability
e : exponential value

(2) to calculate the probability [Ln (P$_i$/1-P$_i$)] noted as FP$_i$ in equation 5 based on the estimation results of a$_o$, b$_1$, b$_2$, b$_3$, b$_4$, and b$_5$ of the logit model. The probability is used to determine the cut-off (C*) as an objective criterion for distinguishing firms based on financial constraints. If the firm's FP$_i$ is greater than the cut off (FP$_i$> C*), the firm is categorized as constrained firm. Conversely, if FP$_i$< C*, the firm is categorized as unconstrained firm; and (3) to determine the cut-off value (C*) that is based on the percentile value of 67.78 percent. Firms that have FP$_i$ greater than C* (67.78 percent percentile values) are grouped as financially constrained. In contrast, firms that have FP$_i$ lower than C* (67.78 percent percentile values) are grouped as financially unconstrained.

Control Variables

Some of control variables that may have an effect on investment decisions included in the study that can be seen as follows:

Leverage measured by the following formula (Aivazian *et al.*, 2005):

$$\text{Leverage}_{i,t-1} = \frac{[\text{short term liabilities}_{i,t-1} + \text{long term debt}_{i,t-1}]}{\text{Total asset}_{i,t-1}} \dots (9)$$

Size is measured with Size$_{i,t}$
= Ln(total aset$_{i,t}$) (Chang et al., 2009).......................... (10)
Sales are measured in Ln sales$_t$ (Chang et al., 2009).... (11)

A research model for the relationship between financial constraints and the sensitivity of cash flows-investment can be developed as follows:

$$\text{Investment}_{it} = \alpha_1 + \beta_1 \text{CF}_{it} + \beta_2 \text{FC}_{it} + \beta_3 \text{CF}_{it} * \text{FC}_{it} +$$
$$\beta_4 \text{Size}_{it} + \beta_5 \text{Leverage}_{i,t-1} + \beta_6 \text{Sales}_{it-1} + \varepsilon_{it} \dots \dots \quad (12)$$

Where:

Investment	: capital expenditures measured as total asset at beginning of year
CF	: cash flows
FC	: financial constraints measured as dummy variable taken the value one for financially constrained and zero for otherwise.
β_0	: constant variables
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$	: regression coefficient
t-1	: the beginning of the period
i	: 1, 2,..., n is the number of units/ individual cross section
t	: 1, 2,..., t, is the number of time periods
ε	: error

Statistical results of equation (12) can be interpreted as follows: (1) β_1 measures the sensitivity of the effect of cash flows on investment for unconstrained firms; (2) β_2 measures the sensitivity of the effect of financial constraints on investment, where financial constraints as an independent variable; (3) β_3 measures the sensitivity difference of the effect of cash flows on investment between unconstrained and constrained firms; and (4) constrained firms denoted with β_{total} are measured with $\beta_1 + \beta_3$.

Classic Assumption Tests

Before conducting a regression analysis, the developed model is tested from the classical assumptions. Classic assumption tests consist of normality test of the residual of the regression, multicollinearity, heteroscedasticity, and autocorrelation (Ghozali, 2011). Although this model uses three-year observations, this research does not conduct autocorrelation test since the research model does not treat the data as panel data involving time series and cross sectional data but as repeated cross sectional data.

RESULTS

After the regression model passed from the normality, multicollinearity, and heteroscedasticity test (the result of the series tests can be seen in Appendix 1), the regression result can be seen as follows.

Descriptive Statistics

The descriptive statistics can be seen in Table 3. Because residuals of the regression are not normal, this research transformed investment into

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
			Descriptive Statistics		
SQRTinvestment	323	12.5240	20.0912	14.694240	1.1802323
CF	324	.1136	22.1059	8.435638	4.6517073
CF_FC	324	.0000	13.3476	1.304194	3.1894950
LnSize	324	682.1461	915.5867	789.745382	49.0813763
Leverage	324	.2840	21.0153	8.898240	4.4021946
LnSales	324	560.0869	932.2569	784.800701	61.4546261
Constrained Firms	63				
Valid N (listwise)	323				

square root (SQRT) form and transformed size and sales into logarithm natural (Ln) form. Furthermore, outlier data also were removed from the analysis to get a normal distribution. There is one data that is removed from the analysis because of an outlier. This table does not have mean and Std. Deviation for constrained firms because of a dummy variable. The number of constrained firms is 63 firms so that the number of unconstrained firms is 260. The table shows that the average investment in SQRT form is 14.694240 and the average of cash flows is 8.435638.

Coefficient Determination (R^2)

Coefficient determination shows the goodness of fit of model. Table 4 shows that R^2 is equal to 29.7 percent. It means that independent variables included in the model can explain investment at 29.7 percent. The rest (70.3 percent) is explained by other variables excluded from the model.

Simultaneous Effect Test (F Test)

F test also shows the goodness of fit of the model. The fitness of the model can be seen from the significance level (alpha).

Table 4. Coefficient Determination (R^2)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.545[a]	.297	.284	.9985729

a. Predictors: (Constant), LnSales, FC, CF, LnSize, Leverage, CF_FC
b. Dependent Variable: SQRTinvestment

Table 5. Result of F Test

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	133.431	6	22.238	22.302	.000[b]
Residual	315.099	316	.997		
Total	448.529	322			

a. Dependent Variable: SQRTinvestment
b. Predictors: (Constant), LnSales, FC, CF, LnSize, Leverage, CF_FC

Table 6. Result of t Tests

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	9.413	.999		9.423	.000		
CF	.062	.014	.246	4.300	.000	.682	1.466
FC	.157	.295	.053	.533	.594	.229	4.376
1 CF_FC	-.073	.035	-.199	-2.099	.037	.249	4.022
LnSize	.004	.001	.147	2.493	.013	.642	1.557
Leverage	-.045	.018	-.167	-2.488	.013	.496	2.016
LnSales	.003	.001	.161	2.764	.006	.654	1.530

a. Dependent Variable: SQRT investment

Table 5 shows that the value of alpha is less than 0.05. It means that simultaneously independent variables, i.e. LnSales, Leverage, CF, LnSize, CF_FC, and FC significantly affect investment.

The Result of t Tests

T tests provide the decision of whether proposed hypotheses are accepted or rejected. The result of t tests can be seen in Table 6.

Based on the result in Table 6, the research model can be formulated as follows:

$$SQRTInvestment_{it} = 9.413 + 0.062CF_{it} + 0.157FC_{it}$$
$$-0.073\,CF_{it} * FC_{it} + 0.004\,LnSize_{it} - 0.045Leverage_{i,t-1}$$
$$+0.003\,LnSales_{it-1} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\ (13)$$

The model can be read as follows: (1) when all independent variables are zero, the SQRTinvestment will be 9.413; (2) β_1 is 0.062. This is the beta for unconstrained firms. The beta 0.062 indicates that the increase in cash flows by 1 percent will affect the increase in the SQRTinvestment by 0.062 percent if other independent variables except cash flows are zero. The effect is also significant since the alpha is less than 0.05; (3) β_2 is 0.157 implying that if other independent variables are zero the increase of financial constraints by 1 percent, the SQRTinvestment will increase by 0.157 percent. The effect is not significant; (4) β_3 is -0.073 measuresthe sensitivity difference of the effect of cash flow on investment between unconstrained and constrained firms. The effect is significant. It means that financial constraints significantly weaken the effect of cash flows on investment; (5) beta (β) for constrained firms is -0.011 measured from 0.062 + (-0.073). Beta -0.011 means that the increase of cash flows by 1 percent, the SQRTinvestment will decrease by 0.011 percent if other independent variables except cash flows are zero; (6) β_4 for Ln size is significant the direction is as expected. The increase in Size will increase in

Investment; (7) β_5 for leverage is significant and the direction is not as expected. The increase in leverage will reduce investment; and (8) β_6 for Lnsales is significant and the direction is as expected. The increase in sales will increase investment. Sales will produce cash and the cash will be used to finance firm investment.

DISCUSSION

The result in Table 6 provides empirical evidence that cash flows (internal source of funds) have a positive and significant effect on investment but the beta of unconstrained firms (0.062) is significantly higher than the beta of constrained firms (-0.011). The result is consistent with the findings documented by Kaplan & Zingales (1997) and Cleary (1999) that unconstrained firms have a more sensitive cash flows-investment than constrained firms. The statistic result implies that although unconstrained firms may have access to an external source of funding, they prefer to use cash flows generating from the firm operation rather than use an external source of funding. This may because unconstrained firms are able to earn a large amount of cash from their operation, so they have the capability to finance their investment from cash flows. Although unconstrained firms have access to external funds, they appear to prefer not to use external funds because the utilization of external funds will increase risk. They realized that the slowdown economic growth increases business risks for them so that they try to reduce the usage of long term debts to avoid the worsening of risks. The increase in debt level will worsen the availability of cash flows since firms must pay higher interest that eventually firm investment will decrease. This is strengthened by the significant negative effect of leverage on investment included in this research. Unconstrained firms have a flexibility to choose their source of funding. The result of this research supports the result of Arslan-Ayaydin *et al.* (2014) that flexibility to choose the

source of funding is a significant factor to affect investment, especially during economic crises.

β_3 has a negative sign meaning that financial constraints weaken the effect of cash flows on investment. The result does not confirm the hypothesis that financial constraints should strengthen the effect of internal source of financing decision on investment. Firms with financial constraint should have a higher beta than unconstrained firms. A higher beta reflects that constrained firms more rely on cash flows generating from firm operating activities. Hence, the increase in financial constraint should be followed by the increase in the usage of cash flows to finance their investments. The effect should be positive and significant. In contrast with the proposed hypothesis, this research provides that cash flows have a negative and significant effect on investment. This fact is interesting that can be explained as follows. The decrease of economic growth may pressure firms' operation so that it may worsen the ability of financially constrained firms to generate cash flows. As a result, their investment on fixed assets (PPE) declined significantly. This may be the indication that constrained firms, where they do not have access to an external source of funding, the increase in cash flows may not be used to finance their investment but the cash flows may be used to support their working capital so that their investment experienced a decline. This is in line with Figure 1 showing that from mid-2013 to mid-2015 there was a decline in investment growth in PPE but there was an increase in the total asset.

Additionally, financial constraints significantly weaken the effect of cash flows on investment. Constrained firms have a lower beta than unconstrained firms. It implies that constrained firms lack access to an external source of funding, so they solely rely on internal cash flows. The decrease in economic growth may make constrained firms more difficult to generate money from their operation, so constrained firms tend to under invest (Dogru & Sirakaya-Turk, 2017). They lack cash flows, so they tend to not finance their investment opportunities with positive net present value (NPV). Financing the profitable investment opportunities by using debts make the opportunities become no longer feasible (negative NPV) due to the very expensive cost of debts. The result of the statistic has negative sign meaning that the increase in cash flows of constrained firms will reduce their investment. It is in line with the preference of constrained firms to let investment opportunities go because they do not have enough cash flows to finance their investment. Furthermore, the financial constraint may also be defined as not only limited access to external funding but also limited ability to generate money from their operational activities.

The research finding implies that the fiscal incentives might be not effective enough to prevent firm investment from declining. There is several reasoning to justify this claim. Firstly, Regulation of the Minister of Industry No. 41 of 2013 was based on the Minister of Finance Regulation Number 124 of 2013 on Redemption Amount of Income Tax Article 25 and Procrastination Income Tax Article 29 of 2013 for compulsory specific industry tax. Regulation of the Minister of Industry No. 41 of 2013 classified manufacturing firms that are eligible to get fiscal incentives. The eligible firms are classified as labor-intensive industries, and micro, small, and medium-scale industries (Media-Industri, 2013). Hence, not all types of industries get fiscal incentives. This may be the reason why this regulation was not effective enough to prevent investment growth of manufacturing industry from declining. Secondly, a tax-incentive regulation will work effectively if it is able to reduce the cost of capital (International-Monetary-Fund, 2015a). International Monetary Fund (2015b) suggested that there are several tax incentives that are effective to reduce the cost of capital, such as accelerated depreciation schemes, investment tax credits, and super deductions. In contrast, open-ended and profit-based tax holidays are less ef-

fective because of the benefit of incentives less than the capital cost of investment. Thirdly, Bank Indonesia (Jacobs, 2014) decided to keep the BI Rate at 7.50 percent made manufacturing firms difficult to keep their investment growth sustained.

From Table 2 that although in 2012-2015 nominally firms' investment increases but the growth in investment actually declined significantly. Hence, the tax-incentive regulation to prevent firm investment growth from declining may not suitable because the problem may be at the very expensive cost of capital. Accordingly, providing soft loans for firms may be a more suitable policy in the condition of declining national economic growth.

CONCLUSION AND SUGGESTIONS

Conclusion

From the value of beta and significance value of the statistic results, the study concluded that firstly, cash flows of unconstrained firms have a significant effect on investment. Secondly, financial constraints significantly weaken the effect of cash flows on investment. It means that unconstrained firms may prefer not to use external funds to finance their investment due to the expensive cost of capital. Constrained firms have seen having limited ability to generate money from their operation so that they have a lesser beta. Constrained firms tend to under invest.

Suggestions

The results of this research have several recommendations for policy, practice, theory, and future research. For policy, the financial incentive provided by the government to stimulate investment growth appears not effective since the growth of investment remains declines significantly. The availability of soft loans may help firms to reduce their installment so that they will get a flexibility

to use their cash flows. Then, the availability of cash flows will increase investment.

For practice, when firms are under the slowdown economic growth, to decrease firm risks it is recommended that unconstrained firms with strong cash flows should use their internal cash flows to finance their investment rather than using debts. This recommendation has implication for firms that firms can apply less dividend payout ratio.

This research has a recommendation for theory. It is known that pecking order theory shorts the source of funding from the cheapest to the most expensive. The theory is applicable for Indonesia particularly in decreasing economic growth where uncertainties increase so risks also increase that accordingly cost of capital from external sources increases as well. Hence, unconstrained firms prefer to use cash flows rather than debts to finance their investment. This has an implication that firms may distribute a dividend in a small amount so that the firms retain a large amount of profit to finance firm investment opportunities rather than they have to get loans. This is because the cost of debts is higher than the cost of equity.

Finally, the results of this study also have implication for future studies. This study does not include dividend payout ratio (DPR) as an independent variable in the model. This variable may have an explanation to support the hypothesis if firms prefer to use cash flows so that firms will reduce their DPR. Future research may also include economic growth into the model to capture the explanation which one either economic growth or financial constraint dominantly affects investment. Finally, future studies may include the data in 2016 as well since there are many new regulations introduced by the new government to support a better system to increase investment growth.

REFERENCES

Arslan-Ayaydin, Ö., Florackis, C., & Ozkan, A. 2014. Financial Flexibility, Corporate Investment and Performance: Evidence from Financial Crises. *Review of Quantitative Finance and Accounting,* 42(2): 211–250.

Aivazian, V.A., Ge, Y., & Qiu, J. 2005. The Impact of Leverage on Firm Investment: Canadian Evidence. *Journal of Corporate Finance*, 11(1-2): 277-291.

Baker, M., Stein, J.C., & Wurgler, J. 2003. When Does the Market Matter? Stock prices and the Investment of Equity-Dependent Firms. *Quarterly Journal of Economics*, 118: 969-1004.

Chang, X., Faff, R., Kwok, W.C., & Wong, G. 2009. Financial Constraints, Mispricing, and Corporate Investment. http://ssrn.com/abstract=1101361. Retrieved May 4, 2016.

Cleary, S. 1999. The Relationship between Firm Investment and Financial Status. *The Journal of Finance*, 54(2): 673-692.

Deng, K., Ding, Z., Zhu, Y., & Zhou, Q. 2017. Investment–Cash Flow Sensitivity Measures Investment Thirst, but Not Financial Constraint. *Accounting & Finance Journal*, 57(1): 165-197.

Dogru, T. & Sirakaya-Turk, E. 2017. The Value of Cash Holdings in Hotel Firms. *International Journal of Hospitality Management*, 65: 20-28.

Ehrhardt, M.C. & Brigham, E.F. 2014. *Corporate Finance: A Focused Approach.* 6th Edition. Ohio: Cengage Learning.

Eisenbeis, R.A. 1977. Pitfalls in the Application of Discriminant Analysis in Business, Finance, and Economics. *The Journal of Finance*, 32(3): 875-900.

Fazzari, S.M., Hubbard, R.G., & Petersen, B.C. 1988. Financing Constraints and Corporate Investment. *Brookings Paper on Economic Activity*, 1988(1): 141-206.

Ghozali, I. 2011. *Aplikasi Analisis Multivariate dengan Program SPSS 19.* Semarang: Badan Penerbit Universitas Diponegoro.

Hermeindito. 2004. Information Asymmetry and Management Control: Sensitivity Analysis of Investment and Leverage Funding Sources Selection. *Dissertation.* Gadjah Mada University Yogyakarta.

Hermeindito. 2004. Informasi Asimetri dan Kontrol Manajemen: Analisis Kepekaan Investasi dan Leverage terhadap Pemilihan Sumber-Sumber Pendanaan. *Dissertation.* Gadjah Mada University Yogyakarta.

Hidayat, R. 2010. Keputusan Investasi dan Financial Constraint: Study Empiris Pada Bursa Efek Indonesia. *Buletin Ekonomi Moneter dan Perbankang*, 12(4): 458-479.

International-Monetary-Fund. (2015a). Making Public Investment More Efficient. Washington: International Monetary Fund.

International-Monetary-Fund. (2015b). World Bank, OECD, UN, Options for Low-Income Countries' Effective and Efficient Use of Tax Incentives for Investment. Washington: International Monetary Fund.

Jacobs, P. 2014. BI Rate tetap 7,50%: Bauran Kebijakan Bank Indonesia Diperkuat. Retrieved from Siaran Pers. http://www.bi.go.id/id/ruang-media/siaran-pers/Pages/SP_160214.aspx

Kaplan, S.N. & Zingales, L. 1997. Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints? *Quarterly Journal of Economics*, 112: 169-215.

Kaplan, S.N. & Zingales, L. 2000. Investment-Cash Flow Sensitivities are not Valid Measures of Financing Constraints. *The Quarterly Journal of Economics*, 115(2): 707-712.

Khan, A.S. & Adom, A.Y. 2015. A Test of the Pecking Order Theory of Capital Structure in Corporate Finance. *Accounting & Taxation, 7*(2): 43-49.

Lemmon, M.L. & Zender, J.F. 2016. Asymmetric Information, Debt Capacity, and Capital Structure. *Journal of Financial and Quantitive Analysis*, 45(5): 1161-1187.

Media-Industri. 2013. Perkembangan Industri Manufaktur 2013. *Media Industri, 05,* 62.

Media-Industri. 2016. Industri Makanan & Minuman Jadi Andalan. *Media Industri, 2,* 64.

Moyen, N. 2004. Investment-Cash Flow Sensitivities: Constrained Versus Unconstrained Firms. *The Journal of Finance*, 59(5): 2061-2092.

Myers, S.C. & Majluf, N.S. 1984. Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, 13(2): 187-221.

Vogt, S.C. 1994. The Cash Flow/ Investment Relationship: Evidence from U.S. Manufacturing Firm. *Financial Management*, 23(2): 3-20.